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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,859	04/25/2005	Varda Herskowitz	306/04152	4702
44909	7590	12/18/2007		
PRTSI P.O. Box 16446 Arlington, VA 22215			EXAMINER WANG, QUAN ZHEN	
			ART UNIT 2613	PAPER NUMBER
			MAIL DATE 12/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,859	Applicant(s) HERSKOWITS ET AL.	
	Examiner Quan-Zhen Wang	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18,20-35 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18,20-35 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "differential phase shifter" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 34 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Donnell et al. (WO 9710658) in view of Robinson et al. (U.S. Patent US 5,822,100).

Regarding claim 34, O'Donnell discloses a dual path filter apparatus (fig. 4) for correcting distortion on an optical transmission link carrying a multiplicity of optical transmission channels, the apparatus comprising: first correction apparatus (fig. 4, adaptive wavelength filter 30) that receives the signals from a first one of the paths comprising a first adjustable equalizer, an optical field sampler (fig. 4, detector 38) that samples signals passing through said equalizer and a controller that is operative to adjust the first adjustable equalizer, responsive to the sampled signals to ameliorate the distortion; and second correction apparatus (fig. 4, adaptive wavelength filter 20) along the other path comprising a main line adjustable equalizer, substantially the same as the first adjustable equalizer through which a plurality of said channels pass; wherein said controller adjusts parameters of said main line adjustable equalizer responsive to a desired compensation achieved in said first path. O'Donnell differs from the claimed invention in that O'Donnell does not specifically disclose that the system comprising an beam splitter that splits signals received from a transmission system into two paths,

each having carrying substantially the same channels. However, O'Donnell discloses that the adaptive filter 20 splits signals received from a transmission system into two paths, each having carrying substantially the same channels (fig. 4). In addition, a beam splitter that splits signals received from a transmission system into two paths, each having carrying substantially the same channels is well known in the art.

Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a beam splitter that splits signals received from a transmission system into two paths in the system of O'Donnell. One of ordinary skill in the art would have been motivated to do so in order to separate the splitting functionality from the equalizer 20 and the cascaded compensations of equalizers 20 and 30 to simplifying the controlling of the system.

Regarding claim 37, O'Donnell further discloses that the first and second correction apparatus are substantially of the same construction (fig. 4).

4. Claims 1, 9-18, 20-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Donnell et al. (WO 9710658) in view of Robinson et al. (U.S. Patent US 5,822,100).

Regarding claims 1 and 35, O'Donnell discloses an apparatus (fig. 3) for correcting distortion on an optical transmission link carrying a multiplicity of optical transmission channels, the apparatus comprising: an adjustable optical equalizer (FIG. 3, adaptive wavelength filter 20) , through which a plurality of said channels (fig. 3, $\lambda 1$ - $\lambda 4$) pass; a field sampler (fig. 3, detectors 25) that samples signals passing through said

equalizer, such that a plurality of channels passing through the adjustable equalizer are separately sampled; and a controller (fig. 2, control circuit) that receives the samples, determines control parameters for the equalizer responsive to said determined control parameters. O'Donnell differs from the claimed invention in that O'Donnell does not specifically disclose that the controller adjusts the phase or time delay of at least one element of the equalizer. However, it is well known in the art to for a controller to adjust phase or time delay of at least one element of an equalizer. For example, Robinson discloses a PMD compensator wherein a controller adjusts time delay of at least one element of an equalizer (fig. 3B). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the PMD compensator, as it is disclosed by Robinson, in the equalizer of O'Donnell and configure the a controller adjusts time delay of at least one element of an equalizer. One of ordinary skill in the art would have been motivated to do so in order to compensate for polarization mode dispersion generated from a transmission line in an optical network.

Regarding claim 9, O'Donnell further discloses that all of the channels received on the transmission link pass through the adjustable equalizer (fig. 3).

Regarding claims 10, it is would have been obvious to configure the modified system to receiver a plurality of channels comprises fewer than all of the channels received on the transmission link.

Regarding claim 11, O'Donnell further discloses including at least one additional distortion correction apparatus (intensity), which is operative to adjust at least some of the other channels received on the transmission link.

Regarding claim 12, O'Donnell further discloses that each additional distortion apparatus comprises: an adjustable optical equalizer, through which a plurality of said channels pass; a field sampler that samples signals passing through said equalizer, such that a plurality of channels passing through the adjustable equalizer are separately sampled; and a controller that receives the samples, determines control parameters for the equalizer therefrom and adjusts the equalizer, responsive to said determined control parameters (fig. 3).

Regarding claim 13, O'Donnell further discloses that the plurality of channels corrected by at least some of the distortion correction apparatus comprises 4 channels (fig. 3).

Regarding claims 16-18, and 20-32, O'Donnell and Robinson differ from the claimed invention in that O'Donnell and Robinson do not specifically disclose the specific controlling methods. However, Examiner takes Official Notice that the cited controlling methods are well known methods in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate these well known methods in the modified system of O'Donnell and Robinson. One of ordinary skill in the art would have been motivated to do so in order to control the modified system with well known, available methods.

Regarding claim 33, O'Donnell further discloses that the controller updates the control parameters based on actual data transmitted on the transmission link.

5. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Donnell et al. (WO 9710658) in view of Robinson et al. (U.S. Patent US 5,822,100) and further in view of Moeller et al. (U.S. Patent US 6,538,787 B1).

Regarding claims 2-8, O'Donnell and Robinson have been discussed above in regard with claim 1. The modified system of O'Donnell and Robinson differs from the claimed invention in that O'Donnell and Robinson do not specifically disclose that the equalizer comprises a concatenation of a plurality of tunable optical filters; a polarization adjuster and a differential delay for orthogonal polarizations; a polarization adjuster and a differential phase shifter for orthogonal polarizations; a differential delay for orthogonal polarizations; a beam splitter and a differential delay; a beam splitter and a different phase shifter for the split beams; and a differential delay for the split beams. However, these elements are well known in the art. For example, Moeller discloses an equalizer comprising a concatenation of a plurality of tunable optical filters; a polarization adjuster and a differential delay for orthogonal polarizations; a polarization adjuster and a differential phase shifter for orthogonal polarizations; a differential delay for orthogonal polarizations; a beam splitter and a differential delay; a beam splitter and a different phase shifter for the split beams; and a differential delay for the split beams (fig. 10). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the equalizer of Moeller in the modified system of O'Donnell and Robinson. One of ordinary skill in the art would have been motivated to do so in order to compensate for polarization mode dispersion in wideband application (Moeller: abstract).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

qzw
12/15/2007


Quan-Zhen Wang